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Permanent GPS observatories for monitoring of geodynamic motions in the Bohemian Massif

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Within activities of the Centre of Earth Dynamic Research, Institute of Rock Structure and Mechanics Academy of Sciences CR (IRSM), five permanent GPS observatories were established to the purpose of geodynamic studies of the Bohemian Massif. Their positions in the Massif were set up with respect to its geological structures and the existence of already operated GPS observatories as well as position of the IRSM networks for GPS epoch measurements. The IRSM GPS observatories are situated at the following sites:

1. SNEC – at a top of the Sněžka Mt., the highest point of the Czech Republic, in operation since 2001,
2. BISK – on a stone watchtower at the Biskupská kupa hill near Zlaté Hory, in operation since 2001,
3. MARI – on the chimney of building in Mariánská village near Jáchymov located at the eastward wing of the seismoactive Mariánské Lázne tectonic zone, in operation since 2003,
4. POST – at a roof of panel house in Poustka village near Frantiskovy Lázne situated at the opposite westward wing of the same tectonic zone, in operation since 2003, and
5. VACO – at a roof of panel house in Vacov village near Vimperk, in operation since 2004.

The observatories SNEC and BISK are linked to WEST and EAST SUDETEN regional geodynamic networks to ensure reasonable movement evaluations detected on network sites during individual annual epoch GPS measurements. The observatories MARI and POST are closed to the German GPS observatories Grünbach (GRNB) and Neustadt (NEUS) to monitor geodynamic motions along the seismoactive Mariánské Lázne fault zone in the west part of the Bohemian Massif. The observatory VACO is located on an opposite side of the shear zones of the Bavarian Pfahl with respect to the EPN German observatory Wettzell (WTRZ). All IRSM observatories are equipped with Ashtech Z-18 receivers and precise choke-ring Ashtech antennas that allow both NAVSTAR and GLONASS satellite signals to be monitored. Moreover, the BISK observatory is equipped with meteorological sensors for temperature, atmospheric pressure and relative humidity registrations. The observatories are connected on-line to the IRSM centre to transmit hour-data observed to the centre. The remote control of the observatories, continual GPS data transmission from observatories to IRSM server and routine data processing will be presented.